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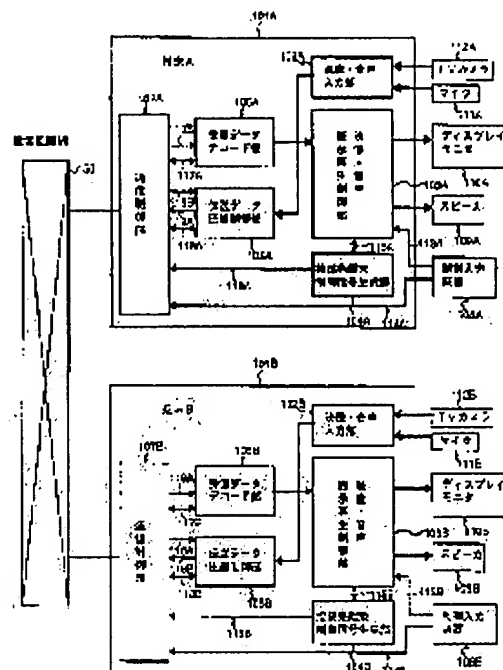
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(54) VIDEO TRANSMISSION PROCESSING DEVICE

(57)Abstract:

PURPOSE: To freely revise and set the resolution and the frame rate of compressed data sent from a connected terminal equipment by providing a connection destination control signal generating section to the terminal equipment so as to allow the receiver side to control the compressed data.

CONSTITUTION: The size of a display pattern of a video image or the lightness or the like or a sound level inputted to a speaker 109B and a frequency characteristic or the like is controlled through a command via a control input device 108. In this case, a video/sound indication reproduction control section 103B outputs a display state of a video image and a reproduction state of a sound signal to a connection destination control signal generating section 104B. The connection destination control signal



generating section 104B outputs a control signal to a transmission data compression control section 105A of a terminal equipment 101A of a connection destination in response to the state of a status signal. Thus, a compression parameter of transmission data or the like is controlled at the receiver side in a form corresponding to the display content on the display monitor 110B at the terminal equipment 101B or the sound reproduction state of a speaker 109B.

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CLAIMS

[Claim(s)]

[Claim 1] The image and the voice input section which has the function to make dynamic-image information and speech information input, and to change this information into digital data, The control input unit which has the function to input the directions for controlling said digital data with the data compression control section which carries out data compression processing, The communications control section which performs connection with a communication line, transmission of compressed data, and reception with the directions from this control input device, The data decoding section which carries out expanding processing of the received compressed data, and the image output means and the voice output means of outputting these received data by which expanding processing was carried out, Make said elongated received data output to said image output means and said voice output means, and further with the directions given through said control input unit In the image transmission processor constituted by having the image and phonological representation playback control section which controls the magnitude of the display screen in said image output means The image transmission processor of the same configuration is connected also to the connection place connected through a communication line. Said image and phonological representation playback control section It has the function which outputs the status signal about display / playback condition containing the magnitude of a screen. With this status signal Have the control signal generation section in the end of a connection tip the signal which controls the voice and image information which the image transmission processor of a connection place outputs is generated, and said communications control section is minded for the signal generated by the control signal generation section in this end of a connection tip. The image transmission processor characterized by outputting to a communication line, making it input into the data compression control section of the image transmission processor of a connection place, and controlling the data compression processing parameter in the image transmission processor of a connection place by the image transmission processor of a connecting agency.

[Claim 2] The control signal generation section is an image transmission processor characterized by to generate a control signal so that the value which multiplied by the amount of data of one frame and the frame rate when determining the magnitude of the frame rate which is the dynamic-image information which detects the magnitude of the display screen in claim 1 publication based on [said end of a connection tip] a status signal , and the image transmission processor of a connection place sends out , and resolution may become within the predetermined value defined beforehand .

[Claim 3] It is the image transmission processor characterized by generating a control signal so that the maximum transmission rate of a communication line may not be exceeded for the transmission rate of the dynamic-image information and speech information to which the image transmission processor of a connection place sends out the control signal generation section in claim 1 publication in said end of a connection tip.

[Claim 4] In either, a superposition control section and the control signal generation section are prepared further. claims 1, 2, and 3 -- The display and control section with which connects and constitutes the system bus of this control signal generation section and an information processor, and this information

processor is equipped. It has the function to make the display status signal about the condition of the display screen input into said control signal generation section. The control signal generation section The directions given through the input unit with which an information processor is equipped, and said display status signal are used. The generation output of the control signal is carried out in said end of a connection tip, and a control signal is further outputted to said image and voice playback control section. A superposition control section The image transmission processor characterized by compounding the display information outputted from an image and a phonological representation playback control section, and the display information outputted from said display and control section, sending out to the display means with which said information processor is equipped, and outputting a synthetic screen on the screen of this display means.

[Claim 5] It is the image transmission processor which connects between at least two or more image processing systems and these image processing systems using a communication line. Each image processing system The image and the voice input section which has the function to make dynamic-image information and speech information input, and to change this information into digital data, The control input unit which has the function to input the directions for controlling said digital data with the data compression control section which carries out data compression processing, The communications control section which performs connection with a communication line, transmission of compressed data, and reception with the directions from this control input device, The data decoding section which elongates the received compressed data, and the image output means and the voice output means of outputting these received data by which expanding processing was carried out, Make said elongated received data output to said image output means and said voice output means, and further with the directions given through said control input unit In the image transmission processor constituted by having the image and phonological representation playback control section which controls the magnitude of the display screen in said image output means The image transmission processor of the same configuration is connected also to the connection place connected through a communication line. Said image and phonological representation playback control section The status signal which shows display / playback condition is outputted. With this status signal Have the control signal generation section in the end of a connection tip the signal which controls the information about the voice and the image which the image transmission processor of a connection place outputs is generated, and said communications control section is minded for the signal generated by the control signal generation section in this end of a connection tip. The image transmission processor characterized by outputting to a communication line, making it input into the data compression control section of the image transmission processor of a connection place, and controlling the data compression parameter in the image transmission processor of a connection place by the image transmission processor of a connecting agency.

[Claim 6] claims 1, 2, 3, and 5 -- the image transmission processor by which it is having-function in which said image output means displays directions item for performing control defined beforehand on the display screen in either, and directions can be inputted through this display screen characterized.

[Claim 7] The display means with which said information processor is equipped in claim 4 publication is an image transmission processor by which it is having-function in which directions item for performing control defined beforehand is displayed on the display screen, and directions can be inputted through this display screen characterized.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention communicates bidirectionally by using an animation and voice as compressed data, and relates to the image transmission processor which performs display and playback.

[0002]

[Description of the Prior Art] Conventionally, as a technique which communicates animation information and speech information to coincidence, there is a TV phone indicated from image (information I) (September, 1988) 49 page to "54 pages", for example. The configuration of this TV phone is explained using drawing 3.

[0003] The component of a TV phone serves as the image section 403 which processes dynamic-image information, the voice section 416 which processes speech information, and a basic configuration with the actuation key 420 which controls dispatch of a telephone, image voice, etc. The display 409 grade for displaying the camera 401 which photos a message person's face etc., and the image sent from the other party is connected to the image section 403 through the video signal line 402 and the display signal line 426, respectively. The earphone 410 which is a means to perform close and the output of speech information is connected to the voice section 416 through the sound signal line 413. Moreover, the loudspeaker 411 and the microphone 412 are connected to the voice section 416 through the sound signal line 414 and the sound signal line 415, respectively for talking over the telephone, with an earphone placed etc.

[0004] Since a TV phone communicates through the communication line 408 to which an upper limit exists in the transmission rate of data, if it does not lessen the amount of data to transmit, it cannot transmit animation information and speech information to coincidence. Therefore, image coding / decryption section 405 is connected to the image section 403 through the decryption video signal line 404, and, on the other hand, voice coding / decryption section 418 is connected to the voice section 416 through the decryption sound signal line 417 at it. Video-signal data are encoded, and you output a coding video signal on a coding video signal, and make it input into the communication line interface 407 in image coding / decryption section 405. A sound signal is encoded, and you output a coding sound signal on the coding sound signal line 419, and make it input into the communication line interface 407 in voice coding / decryption section 418. In order that the actuation key 420 may be a means to specify each actuation of dispatch of a telephone, the display of an image, audio close [audio], output, etc., etc., a signal may be made to input into a control section 422 through the key output signal line 421 and a control section 422 may control an image, voice, a circuit, etc. An image control signal is made to input into image coding / decryption section 405 through the image control signal line 425. Furthermore, a voice control signal is made to input into voice coding / decryption section 418 through the voice control signal line 424, and a line control signal is made to input into the communication line interface 407 through the line control signal 423. In the communication line interface 407, multiplexing processing of a coding BITEO signal, a coding sound signal, and the line control signal 423 is carried out, and it outputs to a communication line 408. A coding video signal is decrypted and it outputs on the

decryption BITEO signal line 404, and a status signal is outputted to a display 409 and an animation is made for the communication line interface 407 to, separate into a coding video signal and a coding sound signal the signal which was inputted from the communication line 408 at the time of reception and by which multiplexing processing was carried out on the other hand, and to display on a display 409 by the image section 403 in image coding / decryption section 405.

[0005] On the other hand, in voice coding / decryption section 418, a coding sound signal is decrypted, it outputs on the decryption sound signal line 417, and the inputted decryption sound signal is outputted to an earphone 410 and a loudspeaker 411 through the sound signal line 413 and the sound signal line 414 in the voice section 416, respectively.

[0006]

[Problem(s) to be Solved by the Invention] Conventionally, with the equipment which transmits the animation and speech information like a TV phone, the compression parameter at the time of an animation information compression etc. has determined the value at the transmitting side by constraint of the maximum transmission rate of the channel to be used.

[0007] Usually, this parameter is automatically set up according to the motion of an image inputted from a camera etc. According to said parameter, data compression processing is performed and the image incorporated from the camera etc. by the transmitting side is sent to a receiving side. In a receiving side, it displays by performing expanding processing of data according to said parameter. Adjustment of the display screen in a receiving side can adjust brightness, contrast, a tint, vividness, etc., when displaying the status signal (video signal) by which expanding processing was carried out on a display.

[0008] However, by the receiving side, as an animation, with the case where the smoothness (frame rate) of a motion is important, although resolution may be required to a detailed part, in the conventional technique, were able to control them and they were not able to be changed according to the contents of the animation information transmitted at a receiving side. About the dynamic image displayed by the receiving side, this invention is real time and offers the image transmission processor which can change the resolution of the data displayed, a frame rate, etc. freely.

[0009]

[Means for Solving the Problem] Since the above-mentioned technical problem is solved, the following means can be considered.

[0010] The image and the voice input section which has the function to make dynamic-image information and speech information input, and to change this information into digital data, The control input unit which has the function to input the directions for controlling said digital data with the data compression control section which carries out data compression processing, The communications control section which performs connection with a communication line, transmission of compressed data, and reception with the directions from this control input device, The data decoding section which carries out expanding processing of the received compressed data, and the image output means and the voice output means of outputting these received data by which expanding processing was carried out, Make said elongated received data output to said image output means and said voice output means, and further with the directions given through said control input unit In the image transmission processor constituted by having the image and phonological representation playback control section which controls the magnitude of the display screen in said image output means The image transmission processor of the same configuration is connected also to the connection place connected through a communication line. Said image and phonological representation playback control section It has the function which outputs the status signal about display / playback condition containing the magnitude of a screen. With this status signal Have the control signal generation section in the end of a connection tip the signal which controls the voice and image information which the image transmission processor of a connection place outputs is generated, and said communications control section is minded for the signal generated by the control signal generation section in this end of a connection tip. It is the image transmission processor which outputs to a communication line, is made to input into the data compression control section of the image transmission processor of a connection place, and controls the data compression processing parameter in the image transmission processor of a connection place by the image transmission

processor of a connecting agency.

[0011] In this case, the configuration in which a control signal is generated so that it may become within the predetermined value as which the value which multiplied by the amount of data of one frame and the frame rate when determining the magnitude of the frame rate whose image transmission processor of a connection place is the dynamic-image information which the control signal generation section detects the magnitude of the display screen based on a status signal, and sends out, and resolution in said end of a connection tip was determined beforehand is desirable. Furthermore, the configuration of the control signal generation section which generates a control signal is also desirable in said end of a connection tip so that the maximum transmission rate of a communication line may not be exceeded for the transmission rate of the dynamic-image information and speech information which the image transmission processor of a connection place sends out.

[0012] Moreover, in the above-mentioned image transmission processor, a superposition control section and the control signal generation section are prepared further. The display and control section with which connects and constitutes the system bus of this control signal generation section and an information processor, and this information processor is equipped. It has the function to make the display status signal about the condition of the display screen input into said control signal generation section. The control signal generation section The directions given through the input unit with which an information processor is equipped, and said display status signal are used. The generation output of the control signal is carried out in said end of a connection tip, and a control signal is further outputted to said image and voice playback control section. A superposition control section The display information outputted from an image and a phonological representation playback control section and the display information outputted from said display and control section are compounded, it sends out to the display means with which said information processor is equipped, and the image transmission processor which outputs a synthetic screen on the screen of this display means is also considered. Moreover, the following means are also considered as a configuration which connected two or more image transmission processors by the communication line.

[0013] It is the image transmission processor which connects between at least two or more image processing systems and these image processing systems using a communication line. Each image processing system The image and the voice input section which has the function to make dynamic-image information and speech information input, and to change this information into digital data, The control input unit which has the function to input the directions for controlling said digital data with the data compression control section which carries out data compression processing, The communications control section which performs connection with a communication line, transmission of compressed data, and reception with the directions from this control input device, The data decoding section which elongates the received compressed data, and the image output means and the voice output means of outputting these received data by which expanding processing was carried out, Make said elongated received data output to said image output means and said voice output means, and further with the directions given through said control input unit In the image transmission processor constituted by having the image and phonological representation playback control section which controls the magnitude of the display screen in said image output means The image transmission processor of the same configuration is connected also to the connection place connected through a communication line. Said image and phonological representation playback control section The status signal which shows display / playback condition is outputted. With this status signal Have the control signal generation section in the end of a connection tip the signal which controls the information about the voice and the image which the image transmission processor of a connection place outputs is generated, and said communications control section is minded for the signal generated by the control signal generation section in this end of a connection tip. It is the image transmission processor which outputs to a communication line, is made to input into the data compression control section of the image transmission processor of a connection place, and controls the data compression parameter in the image transmission processor of a connection place by the image transmission processor of a connecting agency.

[0014] Moreover, said image output means displays the directions item for performing control defined beforehand on the display screen. The image transmission processor considered as the configuration which has the function in which directions can be inputted through this display screen, Or the display means with which said information processor is equipped displays the directions item for performing control defined beforehand on the display screen, and can consider the image transmission processor considered as the configuration which has the function in which directions can be inputted through this display screen.

[0015]

[Function] Hereafter, an operation is explained.

[0016] The control signal generation section is prepared in the image transmission processor of a receiving side in the end of a connection tip, the signal which controls a connection place, i.e., the image transmission processor of a transmitting side, is generated to it, and it inputs into it at the data compression control section of a transmitting side. In addition, the data treated here are animation information, speech information, etc. Now, adjustment of a frame rate, resolution, etc. of the compression parameter used for processing in the data compression control section built in the equipment of a transmitting side is enabled by controlling by the equipment of a receiving side. Furthermore, according to the display conditions (the magnitude of a screen, location, etc.) of the dynamic image on which a status signal is displayed by the receiving side from an image and a phonological representation playback control section by inputting into the control signal generation section in the end of a connection tip, the compression parameter of the transmit data of a transmitting side is controllable.

[0017] Therefore, according to one's purpose, the operator of a receiving side becomes possible [setting up a desired compression parameter] so that he may trade off a frame rate, resolution, etc.

[0018]

[Example] It explains with reference to the example of this invention.

[0019] The example of a configuration of the image transmission processor of this invention is shown in drawing 1 . In drawing 1 , it is shown that an image transmission processor is in the condition that image transmission processor (it is also only hereafter called "Terminal A") 101A and image transmission processor (it is also only hereafter called "Terminal B") 101B were connected, as two sets of image transmission processors in this example although it connects through the communication line network 150. Terminal A101A and terminal B101B have the same configuration, and the sign of the same number shows the same component and they make it the sign which gave "A" and "B" to the number, respectively.

[0020] Hereafter, explanation of this example explains the configuration of terminal A101A first. Terminal A101A has control signal generation section 104A, transmission data compression control-section 105A, received-data decoding section 106A, and communications control section 107A in an image and voice input section 102A, an image and phonological representation playback control-section 103A, and the end of a connection tip, is constituted, and has further composition equipped with TV camera 112A, microphone 111A, display monitor 110A, loudspeaker 109A, and control input unit 108A outside. Control signal generation section 104A, transmission data compression control-section 105A, received-data decoding section 106A, and communications control section 107A are realizable with electron devices, such as CPU, ROM, RAM, and various C-MOS, in an image and voice input section 102A, an image and phonological representation playback control-section 103A, and the end of a connection tip.

[0021] TV camera 112A and microphone 111A are connected to an image and voice input section 102A, and the control signal outputted through the control signal lines 113A and 114A is inputted into an image and phonological representation playback control-section 103A, and communications control section 107A from control input unit 108A, respectively. The compressed data which the output signal of an image and voice input section 102A is inputted into transmission data compression control-section 105A, and is outputted through transmission data compression control-section 105A to compressed data line 119A It is inputted into communications control section 107A, and transmission data compression

control-section 105A and communications control section 107A are connected with the control signal on control signal line 118A, and a control signal is further inputted into transmission data compression control-section 105A through communications control section 107A to control signal line 116B. Received-data decoding section 106A and communications control section 107A are connected by control signal line 117A, and the compressed data outputted through communications control section 107A to compressed data line 119B is inputted into received-data decoding section 106A. The output signal of received-data decoding section 106A is inputted into an image and phonological representation playback control-section 103A.

[0022] Control signal generation section 104A, and an image and phonological representation playback control-section 103A are connected through status signal line 115A in the end of a connection tip, and a control signal is inputted into communications control section 107A from control signal generation section 104A in the end of a connection tip it is outputted through control signal line 116A in the end of a connection tip in the end of a connection tip. Next, the configuration of terminal B101B is explained.

[0023] Terminal B101B has control signal generation section 104B, transmission data compression control-section 105B, received-data decoding section 106B, and communications control section 107B in an image and voice input section 102B, an image and phonological representation playback control-section 103B, and the end of a connection tip, was constituted, and is further equipped with TV camera 112B, microphone 111B, display monitor 110B, loudspeaker 109B, and control input unit 108B outside. Control signal generation section 104B, transmission data compression control-section 105B, received-data decoding section 106B, communications control section 107B, etc. are realizable with electron devices, such as CPU, ROM, RAM, and various C-MOS, in said image and voice input section 102B, an image and phonological representation playback control-section 103B, and the end of a connection tip. TV camera 112B and microphone 111B are connected to an image and voice input section 102B, and the control signal outputted through the control signal lines 113B and 114B is inputted into an image and phonological representation playback control-section 103B, and communications control section 107B from control input unit 108B, respectively.

[0024] The compressed data which the output signal of an image and voice input section 102B is inputted into transmission data compression control-section 105B, and is outputted from transmission data compression control-section 105B It is inputted into communications control section 107B through compressed data line 119B. Transmission data compression control-section 105B and communications control section 107B It connects by control signal line 118B, and a control signal is further inputted into transmission data compression control-section 105B through communications control section 107B to control signal line 116A. Received-data decoding section 106B and communications control section 107B are connected by control signal line 117B, and the compressed data outputted from communications control section 107B is inputted into received-data decoding section 106B through compressed data line 119A.

[0025] The output signal of received-data decoding section 106B is inputted into an image and phonological representation playback control-section 103B. Control signal generation section 104B, and an image and phonological representation playback control-section 103B are connected by status signal line 115B in the end of a connection tip, and a control signal is inputted into communications control section 107B through control signal (end of connection tip) 116B in the end of a connection tip it is outputted from control signal generation section 104B in the end of a connection tip. Next, in the configuration of this operation shown by drawing 1, the case where image information and speech information are transmitted to Terminal B (101B) from Terminal A (101A) is taken for an example, and the actuation is explained.

[0026] In order to connect Terminal B (101B) with terminal A(101) A, if connection with Terminal B (101B) is directed by control input unit 108A, communications control section 107A will be controlled by the control signal (signal on control signal line 114A), and communications control section 107A will make connection with Terminal B (101B) through the communication line network 150 with it. The image information and speech information which are transmitted to Terminal B (101B) from TV camera 112A and microphone 111A are made to input, and in an image and voice input section 102A,

transform processing of the image information and speech information which were inputted is carried out to digital data, and it sends out to transmission data compression control-section 105A.

[0027] In transmission data compression control-section 105A, compression processing of the image and voice data which were inputted is carried out, it outputs to communications control section 107A as compressed data (data on compressed data line 119A), and the compression parameters (for example, a quantization parameter, a sampling rate, the screen amount of data, color data *****, etc.) used at the time of data compression processing are outputted to communications control section 107A as a control signal (signal on control signal line 118A). In communications control section 107A, the compressed image and sound signal, and a compression parameter are changed into the data format which suits the transmission system (for example, method doubled with circuits, such as ISDN) of the communication line network 150 to be used, and it transmits to Terminal B (101B) through the communication line network 150. On the other hand in Terminal B (101B), the data sent from Terminal A (101A) are divided into compressed data (signal on signal-line 119A), and a compression parameter in line-control section 107B, compressed data (signal on signal-line 119A) is inputted into received-data decoding section 106B, and a compression parameter is further inputted into it as a control signal (signal on control signal line 117B).

[0028] In received-data decoding section 106B, by using the compression parameter according the received compressed data (signal on signal-line 119A) to the control signal on control signal line 117B, expanding processing of the data is carried out and it sends out to an image and phonological representation playback control-section 103B with the decoding method which suits the method which carried out compression processing at transmission data compression control-section 105A of Terminal A (101A). The data by which expanding processing was carried out are changed into a video signal and a sound signal, it sends out to display monitor 110B and loudspeaker 109B, respectively, and image information and speech information are made to output in an image and phonological representation playback control-section 103B.

[0029] What is necessary is for the magnitude of the display screen of the image displayed on display monitor 110B, brightness, contrast, a color tone, vividness, etc. to direct the control about voice level, frequency characteristics (tone control), etc. which are inputted into loudspeaker 109B through control input unit 108B, and just to make it the configuration performed with a control signal (signal on control signal line 113B) by controlling an image and phonological representation playback control-section 103B.

[0030] At this time, an image and phonological representation playback control-section 103B output the display condition of the image of the image and phonological representation playback control-section 103B controlled by the control signal (signal on control signal line 113B), and an audio playback condition as a "status signal" (signal on status signal line 115B) to control signal generation section 104B in the end of a connection tip in the end of a connection tip at control signal generation section 104B.

[0031] It sets to control signal generation section 104B in the end of a connection tip. According to the condition of a status signal (signal on status signal line 115B), as a signal for controlling transmission data compression control-section 105A of the terminal A of a connection place (101A) A control signal (signal on control signal line 116B) is outputted, and this control signal is inputted into transmission data compression control-section 105A through communications control section 107B, the communication line network 150, and communications control section 107A.

[0032] Thereby, it becomes possible in the form corresponding to the contents of a display on display monitor 110B on Terminal B (101B), or the voice playback condition in loudspeaker 109B to operate the compression parameter of the transmission data of the transmitting side of data etc. by the receiving side.

[0033] For example, although there is a demand of wanting to enlarge magnitude of a frame rate (it is the number of screens per second) and the image screen displayed, resolution of the indicative data transmitted, etc. in a receiving side, one of parameters will be sacrificed by receiving a limit of the maximum data transmission rate of the transmission line used, and trading off by it being impossible to

fill all a demand of these. for example, although the case where resolution of a frame rate and data is enlarged although the case where enlarge a display screen (namely, a frame rate -- small -- carrying out), and the resolution of data also enlarges it at the sacrifice of a frame rate, and a display screen become small, and resolution of data are made small, the magnitude of a frame rate and a display screen can consider performing various trade-ofves of enlarging. The example of this control is explained with reference to drawing 4 and drawing 5.

[0034] Drawing 4 is drawing showing the user interface on the display monitor of this example, and drawing 5 is drawing showing the relation of the frame rate and resolution to the magnitude of the display screen displayed on a display. In drawing 4, the image sent to the display monitor 501 from the terminal of the other party is displayed on the display screen 502, and the magnitude of 502l. of the display screen can be changed by directing the magnitude of the display screen 502 from control input unit 108B. Moreover, there are a frame rate to show frame rate 503A and resolution 503B of the display screen 502 and resolution display area 503 in the display monitor 501. "fps" expresses frames per second and "Res" expresses resolution here.

[0035] In drawing 4, if the value as which "20" is displayed as a value of frame rate 503A although the value "256" is displayed on resolution 503B becomes large, it means that a frame rate and resolution became large, respectively, and when a value is small, it means that a frame rate is small and resolution is low. Since image data are sent to the maximum of a transmission rate through the communication line network 150 which has constraint Since it becomes impossible for data to transmit normally when the compressed data (data on compressed data line 119A) outputted from transmission data compression section 105A of a transmitting-side terminal surpasses this maximum transmission rate, Compressed data (data on compressed data line 119A) needs to control frame rate 503A and resolution 503B not to surpass the maximum transmission rate.

[0036] In drawing 5, when the magnitude of 502l. (it illustrates to drawing 4) of a display screen is 2 the value of 502l., the curve (curvilinear 502l.2) which shows the value which compressed data (data on compressed data line 119A) can take is illustrated. In addition, the axis of ordinate of this drawing is a frame rate, and has taken resolution along the axis of abscissa. By the user interface of drawing 4, frame rate 503A and resolution 503B can take the value of the range surrounded at the point on the curve shown in drawing 5 (point on the curve determined in 503A and 503B), the point on an axis of ordinate (503A), the point on an axis of abscissa (503B), and the zero. The magnitude of 502l. of the display screen, frame rate 503A, and resolution 503B control an image and the phonological representation playback control section 103 by control signal generation section 104B through a status signal (point on signal-line 115B) in the end of a connection tip not to surpass this range.

[0037] Furthermore, at this time, the control signal (signal on control signal line 116B) for controlling transmission data compression section 105A in the end of a connection tip is generated, and the image data compressed at the terminal of a transmitting side are controlled by real time. Thus, the frame rate and resolution of an image which are sent from a transmitting side according to the magnitude of the display screen at the terminal of a receiving side are controllable within the limits of the maximum transmission rate of the communication line currently used. As mentioned above, although the case where an image was sent to terminal 101B from terminal 101A was explained, it is also the same as when sending to Terminal A (101A) from Terminal B (101B).

[0038] It is the same even if three or more terminals exist in being carried out. Moreover, in drawing 5, although 3 is shown 502l. 1 and 502l. of curves of curvilinear, this shows the case where the magnitude of 502l. of the display screen takes 502l. value of 1, 502 l.3, respectively, and, in now, $502l. 1 < 502l. 2 < 502l. 3$ and unrelated relation. As mentioned above, in this example, although taken and explained to the example of connection of the terminal of 1 to 1, you may use it, connecting two or more sets of terminals to coincidence. In this case, you may display by making the display screen 502 shown by drawing 4 the configuration which only the number of the other party terminals connected exists, and two or more frame rates and resolution display area 503 exist similarly, or displays only one piece, and displays the screen to the connection tip end of desired by actuation. The software built in electron devices, such as CPU, ROM, and RAM, and these devices realizes, and it deals in such NOT-AND

operation notation.

[0039] Of course, when two or more terminals are connected to the terminal B of drawing 1 (101B), a control signal (signal on control signal line 116B) will control the transmission data compression control section in the end of a connection tip in the end of a connection tip it is outputted from control signal generation section 104B in the end of a connection tip, respectively. Next, the 2nd example of this invention is explained with reference to drawing 2. A terminal 260 has the composition which compounds the transmitted image to the display of a personal computer etc., and can display it on the display monitor of an information terminal unit, using the display monitor of information-processing terminal units, such as a personal computer and a workstation, as a display monitor of the terminal shown by drawing 1, and in drawing 2, it also constitutes communications control further so that the directions given through a keyboard, a mouse, etc. which is the input/output interface of an information-processing terminal unit may perform.

[0040] Next, the configuration of a terminal 260 is explained. An image and the voice input section 202 connect TV camera 212 and a microphone 211 outside, and the output signal of an image and the voice input section 202 is inputted into the transmission data compression control section 205. The transmission data compression control section 205 outputs compressed data to the communications control section 207 through the compressed data line 219, inputs the control signal (signal on the control signal line 316) received from the control signal generation section at last [connection tip] in the end of a connection tip it connects with the communications control section 207, and is further connected by the control signal line 218. The compressed data (signal on the compressed data line 319) outputted from the communications control section 207 is inputted into the received-data decoding section 206, and is further connected by the control signal line 217. The output of the received-data decoding section 206 is inputted into an image and the voice playback control section 203, the voice output of an image and the phonological representation playback section 203 is outputted to the external loudspeaker 209, and a video output is made to input into the superposition control section 257. The control signal generation section 204 is connected by the status signal line 215, and the control signal outputted through the control signal line 216 in the end of a connection tip from the control signal generation section 204 is inputted into the communications control section 207, and is inputted into the transmission data compression control section of the terminal connected through the communication line 150 in an image and the phonological representation playback control section 203, and the end of a connection tip. The control signal (signal on the control signal line 213) from the control signal generation section 208 is inputted into an image and the phonological representation playback control section 203.

[0041] The control signal (signal on the control signal line 214) outputted from the control signal generation section 208 is inputted into the communications control section 207. Moreover, the control signal generation section 208 is connected to a system bus 250. CPU252, the primary-storage memory 251, the secondary memory memory 253, the personal computer / WS (workstation) display and control section 254, and the input interface 256 are connected to the system bus 250. The display output signal outputted from a personal computer / WS display-control section 254 is inputted into the superposition control section 257, and the display output signal outputted from a superposition control section is outputted to the display monitor 210. Moreover, a keyboard 259 and mouse 258 grade are connected to the input interface 256. Next, the actuation in this example is explained.

[0042] In an image and the voice input section 202, an image and a phonological representation playback control section 203, and the end of a connection tip the control signal generation section 204, the received-data decoding section 206, the transmission data compression control section 205, and the communications control section 207 The image and the voice input sections 102A and 102B, the image and phonological representation playback control-section 103A which were shown by drawing 1, It is the same configuration as 103B, end control signal generation section of connection tip 104A, 104B, the received-data decoding sections 106A and 106B, the transmission data compression control sections 105A and 105B, and the communications control sections 107A and 107B, and the same actuation is performed. In this example, instead of the control input units 108A and 108B shown by drawing 1 The

control signal (signal on the control signal line 213) which forms the control signal generation section 208, is outputted from the control signal generation section 208, and is inputted into an image and the phonological representation playback control section 203. It is the same as that of the signal on control signal line 113A of drawing 1, and 113B, and the control signal (signal on the control signal line 214) which is outputted from the control signal generation section 208, and is inputted into the communications control section 207 is the same as the signal on control signal line 114A of drawing 1, and 114B. Superposition control is performed by the superposition control section 257, and the display output signal outputted from a personal computer / WS display-control section 254 and the image output signal outputted from an image and the phonological representation playback control section 203 change the video output outputted from an image and the phonological representation playback control section 203 into the scanning timing of the display monitors 210, such as a personal computer and a workstation, and it is compounded with the display of a personal computer/WS, and it displays it.

[0043] It is control to pile up here and for the animation information which switches the display output signal and the image output signal from an image and the phonological representation playback control section 203 which are received from a personal computer / WS display-control section 254, is made to output to the display monitor 210, and is outputted to the display screen 502 in drawing 6 from an image and the phonological representation playback control section 203 display control. This control is realized as follows, for example. First, in a certain specific color which defined beforehand the part equivalent to the viewing area of the display screen 502 by the personal computer / WS display-control section 254, continuous tone and the superposition control section 257 detect this specific color, and the display information from an image and the phonological representation playback control section 203 is outputted at the time of a specific color, and they should just perform control which switches so that the display information on a personal computer / WS display-control section 254 may be outputted at the times other than a specific color. Furthermore, what is necessary is to change the signal outputted from an image and the phonological representation playback control section 203 into the scan timing which suits the display monitor 210, and just to control by the superposition control section 257 to take a synchronization. Thus, it becomes possible to display the animation information sent out to the field of the display screen 502 from an image and the phonological representation playback control section 203 as shown in the display monitor 210 at drawing 6.

[0044] In addition, this superposition control section 257 is realizable with electron devices, such as CPU, ROM, and RAM. Now, the alter operation through the input means by the keyboard 259 and mouse 258 grade performs generation of the control signal by the control signal generation section 208 through the input interface 256. Moreover, in order to control in relation to the display control by the personal computer / WS display-control section 254 at this time, a display status signal (signal on a signal line 255) is made the configuration inputted from a personal computer / WS display-control section 254. Control of a personal computer / WS display-control section 254, control of the control signal generation section 208, etc. are realizable with the configuration which CPU252 performs in an auxiliary storage unit 253 and primary-storage memory 251 grade by the program feared the account of ** beforehand. Next, the example of a display on the display monitor 210 is shown in drawing 6. On the display monitor 510, a frame rate, a resolution display, and the modification area 504 are displayed as the display screen 502 based on the display information from an image and the phonological representation playback control section 203, and the display output 506 from a personal computer / WS display-control section 254 on the same screen, respectively.

[0045] For example, use the mouse which is a locator and a mouse cursor 505 is moved. The magnitude of the display screen 502 and 502l. can be changed. A frame rate resolution display, Carbon button 504a prepared on the modification area 504 (increment in the value of "fps"), The value of frame rate 503A and resolution 503B can be changed by moving a mouse cursor on 504b (increment in the value of "Res"), 504c (reduction of the value of "fps"), and 504d (reduction of the value of "Res"), and operating the carbon button of a mouse. The range which can change a value is within the limits surrounded as mentioned above by the curve shown by drawing 5, and an axis of ordinate and an axis of abscissa. This modification is realizable with the mouse 258 and the input interface 256 which are shown in drawing

2, a system bus 250, the personal computer / WS display-control section 254, CPU252, the superposition control section 257, and the software for man machine interfaces stored in the primary-storage memory 251. In addition, "fps" means the frame number per second and "Res" means resolution here. Since it is possible to operate other software and coincidence which operate on an information processing terminal in addition to the image transmitted and displayed, and to display according to this example, it is possible to relate transmission of an image and other software and to also make it operate. [0046] For example, store in the database software which classifies the video data transmitted according to the contents, and operates on a personal computer/WS. A classification and are recording of image information, and the animation transmitted are made to stand it still further, it considers as a still picture, and this still picture is stuck on the sheet of desktop publishing (DTP software) which operates by the personal computer/WS. Furthermore, corresponding to the item of the table of a spreadsheet, the animation information beforehand accumulated in the magnetic disk of a personal computer/WS is retrieved and displayed, and application of transmitting it can be considered. As mentioned above, in this example, when exchanging a video data between the applications which operate on a personal computer/WS, looking at animation display, it can use.

[0047]

[Effect of the Invention] According to this invention, resolution, a frame rate, etc. can be freely changed and set up by the control signal generation section in the end of a connection tip within the limits of the maximum transmission rate of the transmission line which uses the compressed data sent from the end of a connection tip, controlling it by the receiving side.

[0048]

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is drawing showing the configuration of the 1st example of this invention.

[Drawing 2] It is drawing showing the configuration of the 2nd example of this invention.

[Drawing 3] It is drawing showing the configuration of the conventional TV telephone.

[Drawing 4] It is drawing showing the example of a display on the display of the 1st example of this invention.

[Drawing 5] It is drawing showing the relation between the magnitude of the display screen, and a frame rate and resolution.

[Drawing 6] It is drawing showing the example of a display on the display of the 2nd example of this invention.

[Description of Notations]

101A -- Terminal A, 101B -- Terminal B, 102A -- An image and the voice input section, 102B -- An image and the voice input section, 103A -- An image and a phonological representation playback control section, 103B -- An image and a phonological representation playback control section, 104A -- In the end of a connection tip Control signal generation section, 104B -- The end control signal generation section of a connection tip, 115A -- Status signal line, 115B -- A status signal line, 116A -- A control signal line, 116B -- Control signal line, 108A -- A control input unit, 108B -- A control input unit, 113A -- Control signal line, 113B -- A control signal line, 114A -- A control signal line, 114B -- Control signal line, 106A -- The received-data decoding section, 106B -- Received-data decoding section, 105A -- A transmission data compression control section, 105B -- Transmission data compression control section, 117A -- A control signal line, 117B -- A control signal line, 118A -- Control signal line, 118B -- A control signal line, 119A -- A compressed data line, 119B -- Compressed data line, 107A -- The communications control section, 107B -- The communications control section, 109A -- Loudspeaker, 110A -- A display monitor, 111A -- A microphone, 112A -- TV camera, 109B -- A loudspeaker, 110B -- A display monitor, 111B -- Microphone, 112B [-- An image and the voice input section,] -- A TV camera, 150 -- A communication line network, 260 -- A terminal, 202 203 -- An image and a phonological representation playback control section, 204 -- In the end of a connection tip Control signal generation section, 215 -- A status signal, 216 -- A control signal, 205 -- Transmission data compression control section, 206 -- The received-data decoding section, 208 -- The control signal generation section, 209 -- Loudspeaker, 210 -- A display monitor, 211 -- A microphone, 212 -- TV camera, 213 -- A control signal line, 214 -- A control signal line, 215 -- Status signal line, 216 [-- Compressed data line,] -- A control signal line, 217 -- A control signal line, 218 -- A control signal line, 219 219 [-- Primary-storage memory,] -- A signal line, 207 -- The communications control section, 250 -- A system bus, 251 252 -- CPU, 253 -- An auxiliary storage unit, 254 -- A personal computer / WS display-control section, 255 -- A signal line, 256 -- An input interface, 257 -- Superposition control section, 258 [-- Signal line,] -- A mouse, 259 -- A keyboard, 316 -- A control signal line, 319 401 [-- Decryption video signal line,] -- A camera, 402 -- A video signal line, 403 -- The image section, 404 405 -- Image coding / decryption section, 406 -- A coding video signal line, 407 -- Communication line

interface, 408 [-- Loudspeaker,] -- A communication line, 409 -- A display, 410 -- An earphone, 411
412 [-- Sound signal line,] -- A microphone, 413 -- A sound signal line, 414 -- A sound signal line, 415
416 -- The voice section, 417 -- A decryption sound signal line, 418 -- Voice coding / decryption
section, 419 -- A coding sound signal line, 420 -- An actuation key, 421 -- Key output signal line, 422 --
A control section, 423 -- A line control signal line, 424 -- Voice control signal line, 425 -- An image
control signal line, 426 -- A display signal line, 501 -- Display monitor, 502 -- The display screen, 503 --
Resolution display area, 503A -- Frame rate, 503B [-- A carbon button, 504c / -- A carbon button,
504d / -- A carbon button, 505 / -- A mouse cursor, 506 / -- A display output, 510 / -- Display monitor] -
- Resolution, 504 -- Modification area, 504a -- A carbon button, 504b

[Translation done.]

* NOTICES *

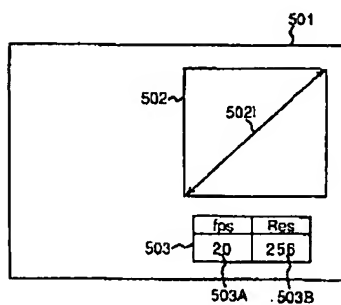
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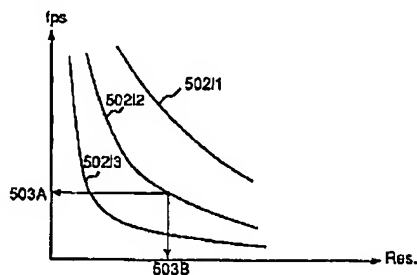
DRAWINGS

[Drawing 4]

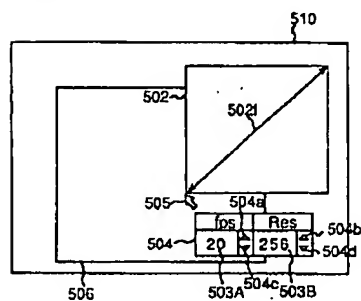
ディスプレイ上のユーザインタフェース (図4)

[Drawing 5]

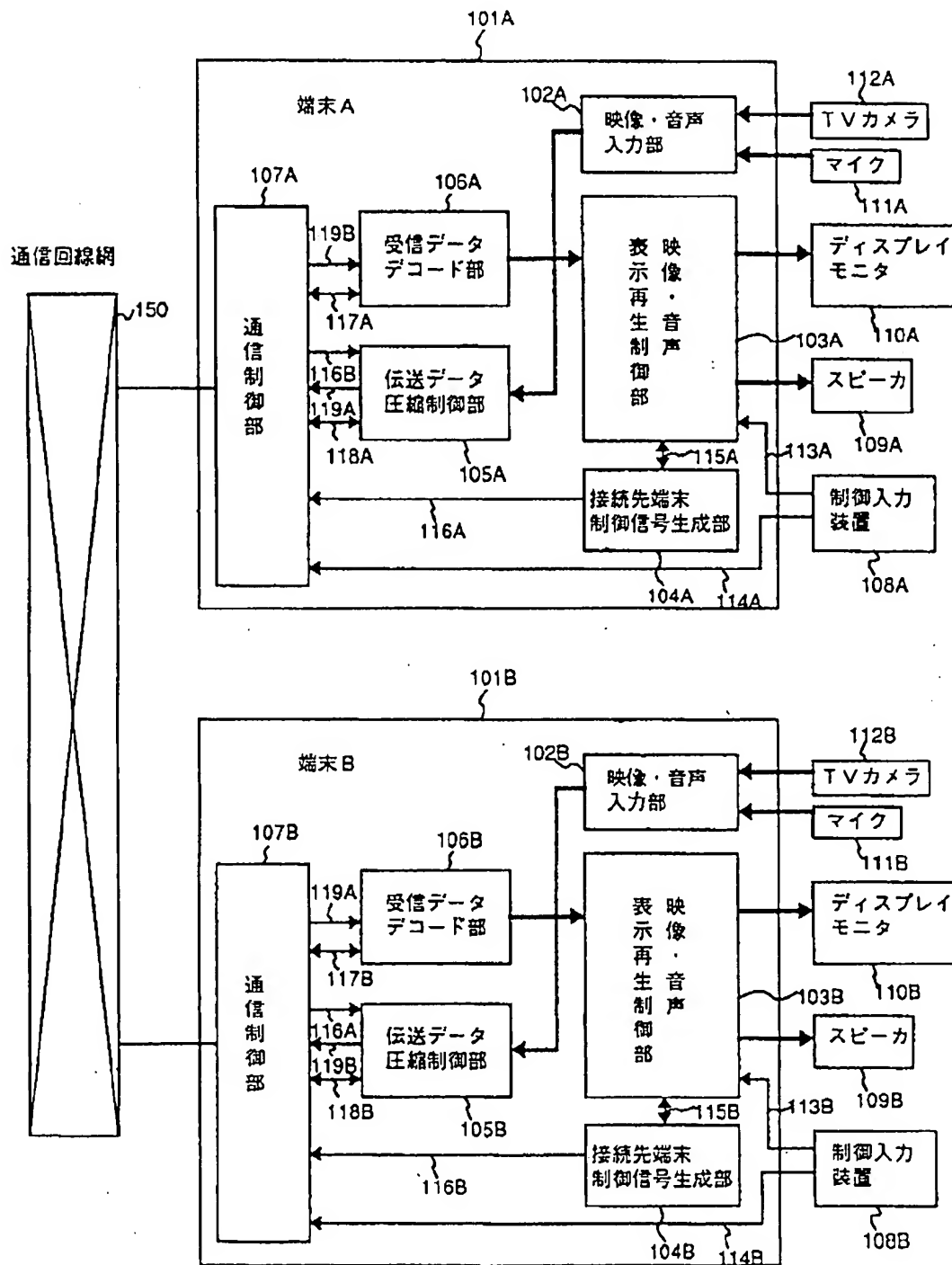
表示画面の大きさとフレームレート、解像度との関係 (図5)

[Drawing 6]

表示及びユーザインタフェース (図6)

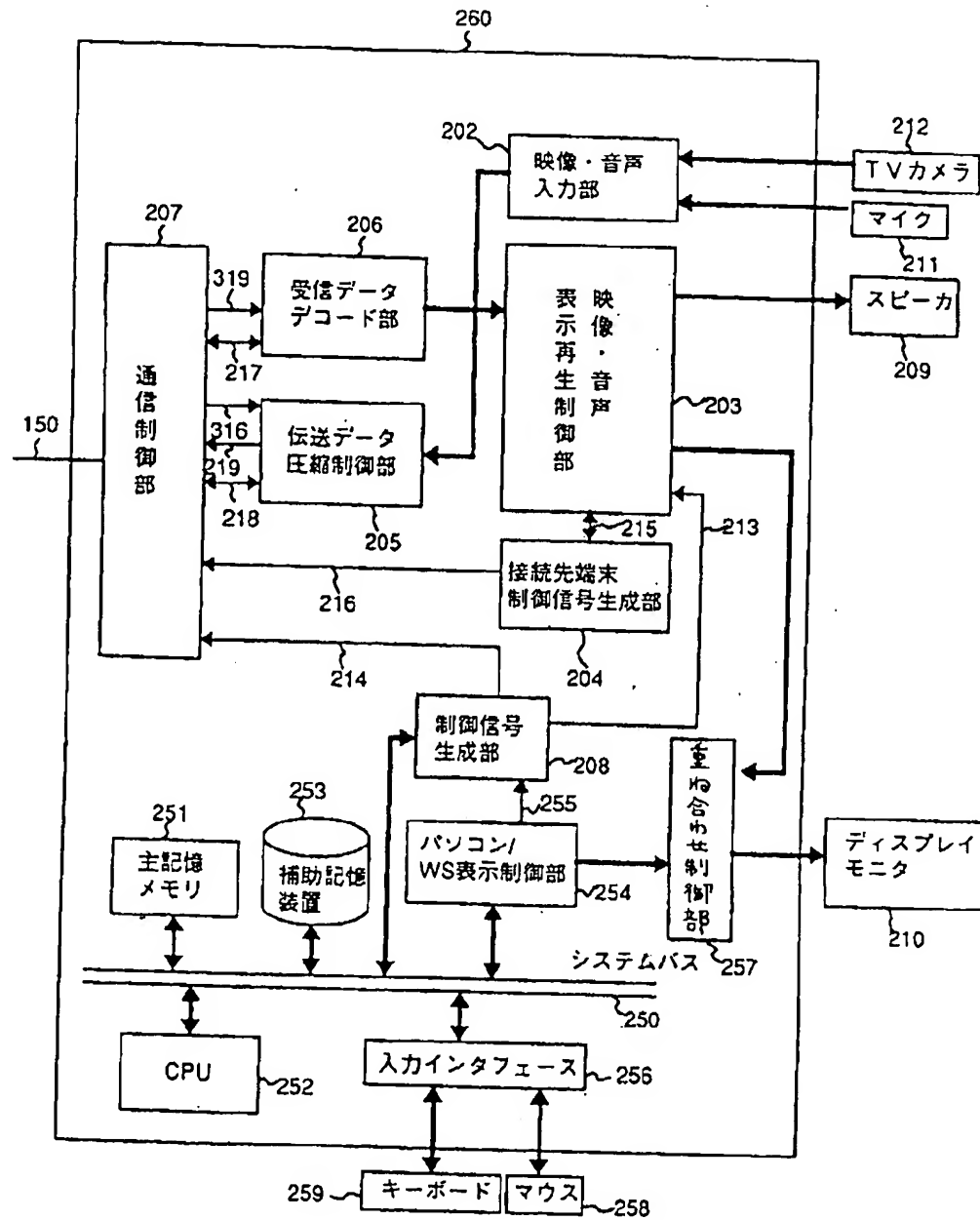
[Drawing 1]

映像伝送処理装置構成図 (図1)



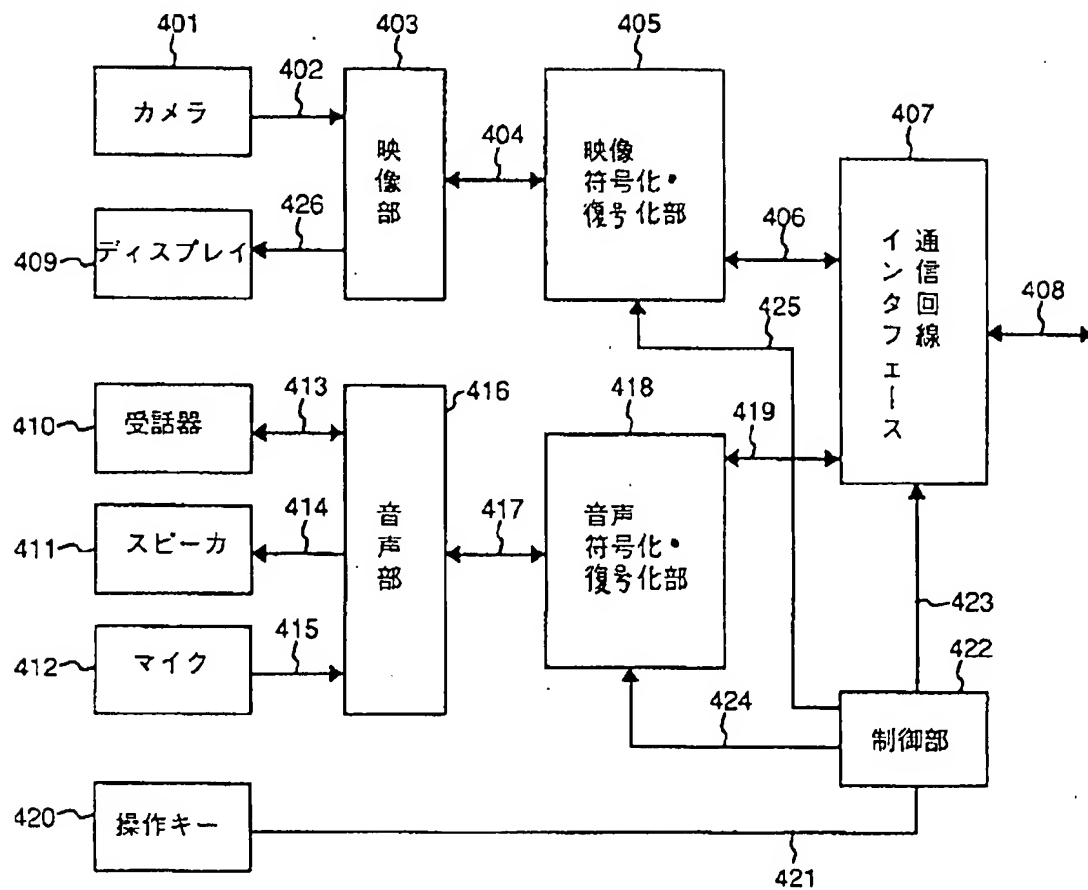
[Drawing 2]

映像伝送処理装置構成図 (図2)



[Drawing 3]

従来のTV電話の構成例(図3)



[Translation done.]